

5.11 SWMU 19: BUILDING 533 FOUNDATION (EMPTY DRUM STORAGE)

5.11.1 Site Description and Waste Generation

The foundation of Building 533 is located between Blume Street and Gardner Road in the north-central portion of the installation, immediately west of Building 536 (SWMU 33) (Figures 5.0-1 and 5.11-1). The Deactivation Furnace-Mercury Contamination Area (SWMU 17), a known release SWMU, is located adjacent to the west side of the Building 533 foundation. SWMU 19 is referred to as Building 533 in the Corrective Action Permit; however, the SWMU name has been revised to reflect the actual site feature. SWMU 19 is now composed of the Building 533 foundation, as the building was demolished by the Installation in early 1992 due to the unsafe nature of the structure.

Building 533 was formerly used for railroad car maintenance (USAEHA 1986). Recently, Building 533 (discussed as SWMU 35 by NUS 1987) had been used primarily for drum storage. Although there is limited information on the wastes stored in Building 533, trash, wood, empty brass shell casings, 5-gallon paint containers, and drums were observed during a site inspection (NUS 1987). Ertec (1982) also listed phosphoric acid, chromates, and titanates as compounds used at this site, although the source of this information is unclear. During the RFI-Phase I, empty drums were seen in Building 533. A strong fuel odor was noted in the building.

5.11.2 Site Hydrogeology

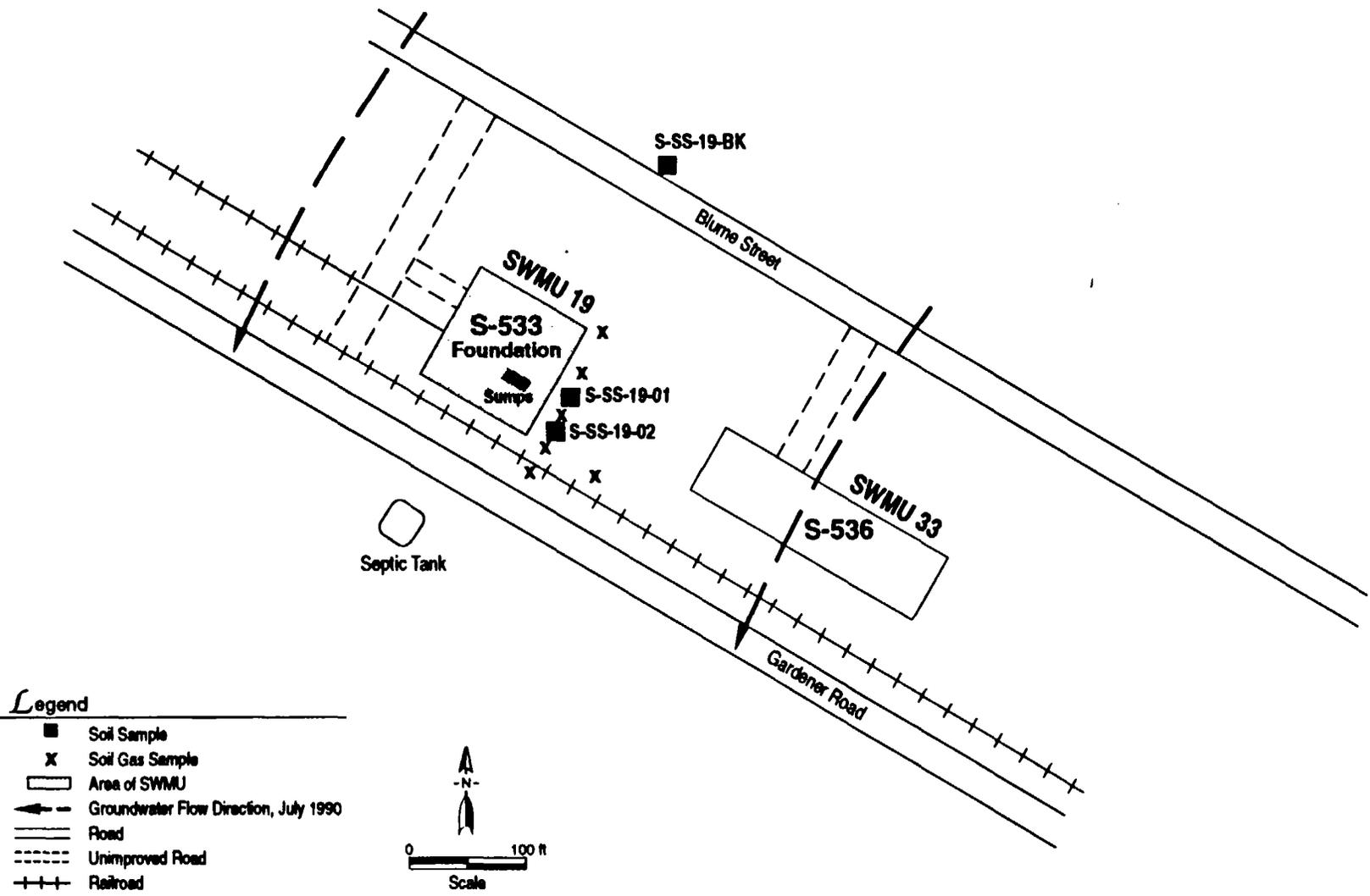
SWMU 19 is located on a slight southwest-sloping topographic surface at approximately 5,225 ft above msl in the north central part of TEAD-S. The site is underlain by Quaternary alluvial deposits. No monitoring wells were installed in the vicinity; thus, subsurface lithologic descriptions are limited to the uppermost 3 ft of sediments and are based on soil samples S-SS-19-01, S-SS-19-02, and S-SS-19-BK.

Surficial soil down to approximately 1 ft is composed of light grayish brown, silty gravel with minor sand and a trace of clay (GM). From 1 to 3 ft, the soil is composed of brown to dark grayish-brown, silty and gravelly clay with minor sand (CL).

The depth to groundwater was estimated to be 145 ft below ground surface at an elevation of approximately 5,080 ft msl. Groundwater flows southwest in this area.

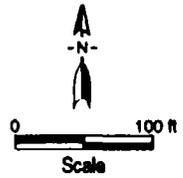
5.11.3 Previous Sampling and RFI-Phase I Results

Sampling was not conducted at SWMU 19 prior to the RFI-Phase I. During the RFI-Phase I, a soil gas survey was conducted that consisted of sample analyses from six locations southeast of Building S-533. Soil samples were collected from two locations southeast of Building S-533, near two soil gas sampling locations. One soil sample was collected as a background sample from the area north of Blume Street.



Legend

- Soil Sample
- × Soil Gas Sample
- Area of SWMU
- ← Groundwater Flow Direction, July 1990
- Road
- - - - Unimproved Road
- + + + Railroad



Source:
 EBASCO Field Measurement
 Basic Information Maps 1985

Figure 5.11-1
Site Map
SWMU 19 - Building S-533 Foundation (Empty Drum Storage)

Tooele Army Depot - South Area
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Soil samples were not collected on the west side of the building during the RFI-Phase I as the area was previously investigated as part of the Deactivation Furnace - Mercury Contamination Area (SWMU 17) (Weston 1991). SWMU 17 was remediated in 1991 (Hart Industries 1991).

Soil gas samples were analyzed for benzene, toluene, xylene, dichloroethylene, tetrachloroethylene, and trichloroethylene to detect the presence of fuel and solvent spills possibly related to historical use of the site for railroad car maintenance. Soil samples were analyzed for volatile organics, semivolatile organics, total petroleum hydrocarbons, and metals. The soil background sample was analyzed for metals.

As a result of RFI-Phase I soil gas results and strong fuel or solvent odors noted in the area by the RFI-Phase I field crew, a historical survey and a site inspection of the Building 533 foundation for waste lines and sumps was completed as part of the additional sampling program in June 1992 to locate potential sources not adequately addressed previously. A total of seven samples were collected from in and below two sumps and between the railroad tracks located in the southern portion of the foundation and were analyzed for PCBs and volatile organics. These samples included one liquid sample from one of the sumps, which was observed to contain standing liquid during June 1992, and one composite sediment sample collected from the dry sump. Five soil samples were also collected from three shallow borings below the dry sump and between the railroad tracks.

Detections in soil, soil gas, and surface water samples are presented in Table 5.11-1. Soil, soil gas, and surface water sampling locations, detected analytes, and their concentrations are presented in Figures 5.11-2 through 5.11-4.

5.11.4 Contamination Assessment

Soil gas analyses indicated the presence of fuel-related volatile organic compounds and chlorinated solvents, possibly related to historical use of the site for railcar maintenance and storage of drums and paint containers. Acetone, 1,1,2,2-tetrachloroethane, and trichloroethylene were also identified in soil sample S-SS-19-02 at very low levels. Actual trichloroethylene levels may be higher than reported since the MS/MSD trichloroethylene spike recovery in this sample was outside the 95 percent confidence limit. Analysis of this sample and the MS/MSD for volatiles was also completed after the holding time had expired.

Trichloroethylene was again detected at low concentrations in soil samples from SWMU 19 during the additional sampling program. It was detected in all three soil samples collected below the dry sump. In addition, carbon tetrachloride, chloroform, and 1,1,1-trichloroethane were also detected at low levels in the soil samples from below the sump. The volatile organic chlorobenzene was also detected in the surface water sample from the liquid sump. Acetone, methylene chloride, and 1,4-dichlorobenzene were also detected in several samples; however, these volatile organics were also detected in the associated method blanks at approximately the same relatively low concentrations, indicating that their detection was probably due to laboratory contamination (EPA 1990).

SOIL (µg/g)

Analytical Groups and Analytes Detected	PHASE I			ADDITIONAL SAMPLING JUNE 1992						Surface Water (mg/l)
	S-SS-19-01	S-SS-19-02	S-SS-19-BK ¹	S-SS-19-03 Grab	S-SS-19-04 0-1 ft	S-SS-19-04 1-2.5 ft	S-SS-19-05 0-1 ft	S-SS-19-06 0-0.5 ft	S-SS-19-06 0.5-2.0 ft	S-SW-19-01
Volatile Organics:										
1,1,1-Trichloroethane (111TCE)	LT 0.0042	LT 0.0042		LT 0.0042	0.0090	0.016	0.011	LT 0.0042	LT 0.0042	LT 4.1
1,1,2,2 - Tetrachloroethane (TCLEA)	LT 0.0016	0.0029		LT 0.0016	LT 0.0016	LT 0.0016	LT 0.0016	LT 0.0016	LT 0.0016	LT 4.70
1,4-Dichlorobenzene (14DCLB)	LT 0.0009	LT 0.0009		0.0014*	0.00078*	0.00068*	0.00069*	LT 0.00090	LT 0.00090	LT 8.1
Acetone (ACET)	0.013	0.014		LT 0.010	LT 0.010	LT 0.010	0.010*	0.0079*	LT 0.010	LT 0.010
Carbon tetrachloride (CCL4)	LT 0.0056	LT 0.0056		LT 0.0056	0.0044	0.0094	0.0069	LT 0.0056	LT 0.0056	LT 3.7
Chlorobenzene (CLC6H5)	LT 0.0028	LT 0.0028		LT 0.0028	LT 0.0028	LT 0.0028	LT 0.0028	LT 0.0028	LT 0.0028	15
Chloroform (CHCL3)	LT 0.0023	LT 0.0023		LT 0.0023	0.0029	0.0034	0.0026	LT 0.0023	LT 0.0023	LT 0.83
Methylene chloride (CH2CL2)	LT 0.0057	LT 0.0057		0.014*	0.0073*	0.0087*	0.0085*	0.0071*	0.0076*	7.2*
Trichloroethylene/Trichloroethene (TRCLE)	LT 0.0038	0.0050		LT 0.0038	0.0088	0.011	0.0095	LT 0.0038	LT 0.0038	LT 0.50
Unknowns	0.21*	0.014*								
Semivolatile Organics:										
Unknowns	20*	27*		NA	NA	NA	NA	NA	NA	NA
Metals:										
Arsenic (As)	20	17	53	NA	NA	NA	NA	NA	NA	NA
Beryllium (Be)	0.24	0.26	0.38							
Chromium (Cr)	26	44	36							
Copper (Cu)	31	28	58							
Lead (Pb)	180	110	250							
Mercury (Hg)	0.15	0.20	0.32							
Silver (Ag)	0.93	0.63	1.8							
Zinc (Zn)	140	110	230							
PCBs:										
Aroclor 1260	NA	NA		0.78	LT 0.054	LT 0.054	LT 0.054	LT 0.054	LT 0.054	LT 0.075
Petroleum Hydrocarbons: none detected				NA	NA	NA	NA	NA	NA	NA

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1 Metals analysis only
 * Detected in associated method blank
 NA Not analyzed
 µg/g Microgram per gram

TABLE 5.11-1

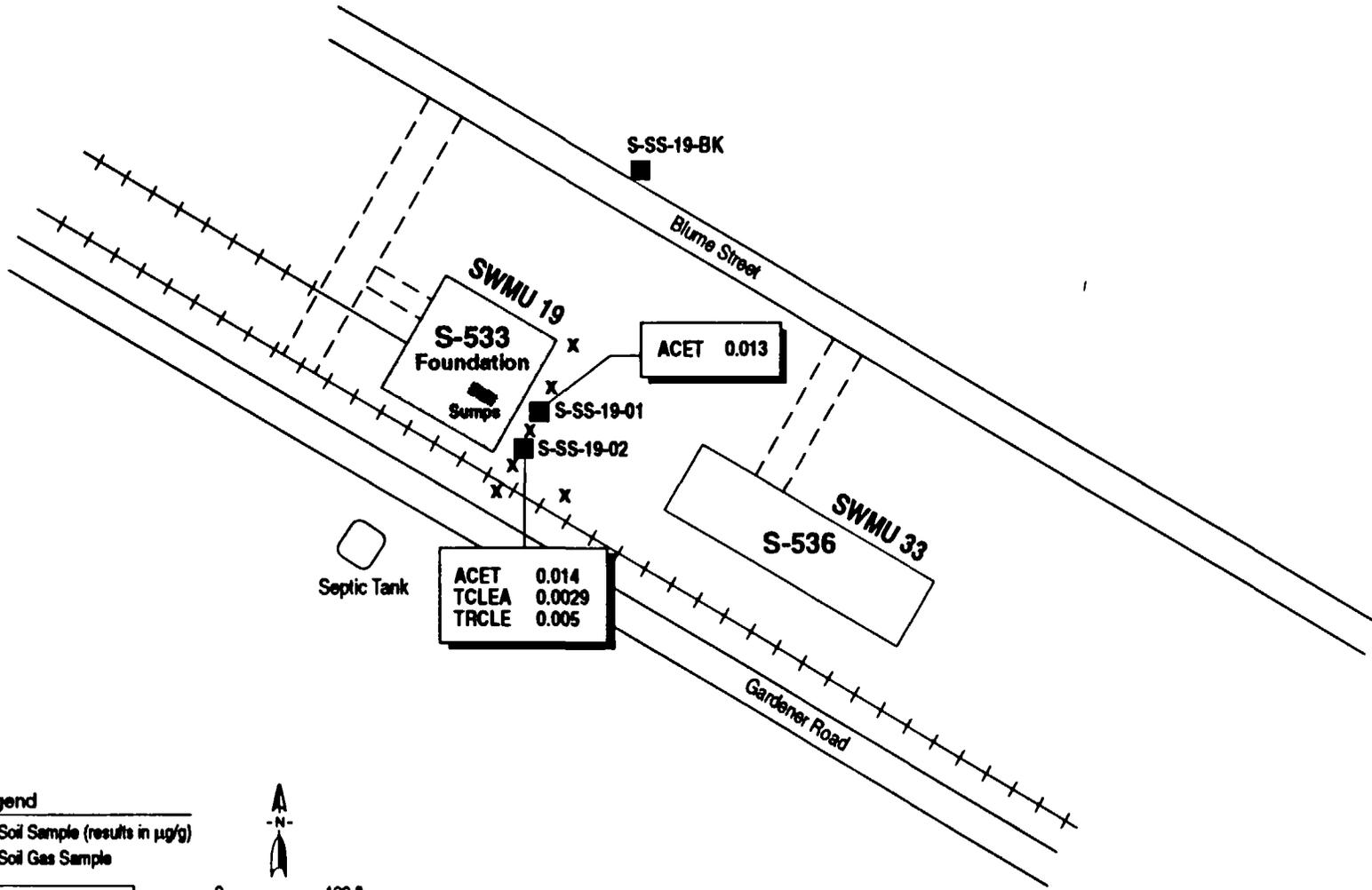
**Summary of RFI-Phase I Investigations for
SWMU 19: Building 533 Foundation (Empty Drum Storage)**

SOIL GAS (ppb)

Sample Number	11DCE	Benzene	TRCLE	Toluene	TCLEE	Xylene	Remarks
19-01	17	110		LT 5	LT 5	18	**
19-02	110	520	22	LT 5	LT 5	12	**
19-02 ^d	100	490	25	LT 5	LT 5	LT 5	**
19-03	90	470	26	LT 5	LT 5	39	**
19-04	59	330	55	390	870	7.0	**
19-04 ^d	48	260	28	430	LT 5	LT 5	**
19-05	LT 5	LT 5	LT 5	LT 5	LT 5	LT 5	**
19-06	LT 5	LT 5	50	LT 5	450	LT 5	**
19-06 ^d	LT 5	36	LT 5	LT 5	LT 5	LT 5	**

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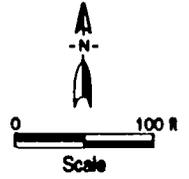
- d Duplicate sample
- 11DCE Dichloroethylene
- LT Less than
- ppb Parts per billion
- TCLEE Tetrachloroethylene
- TRCLE Trichloroethylene
- ** Detection was a multipeak response indicative of a fuel product



Legend

- Soil Sample (results in µg/g)
- X Soil Gas Sample

1990 results are bolded



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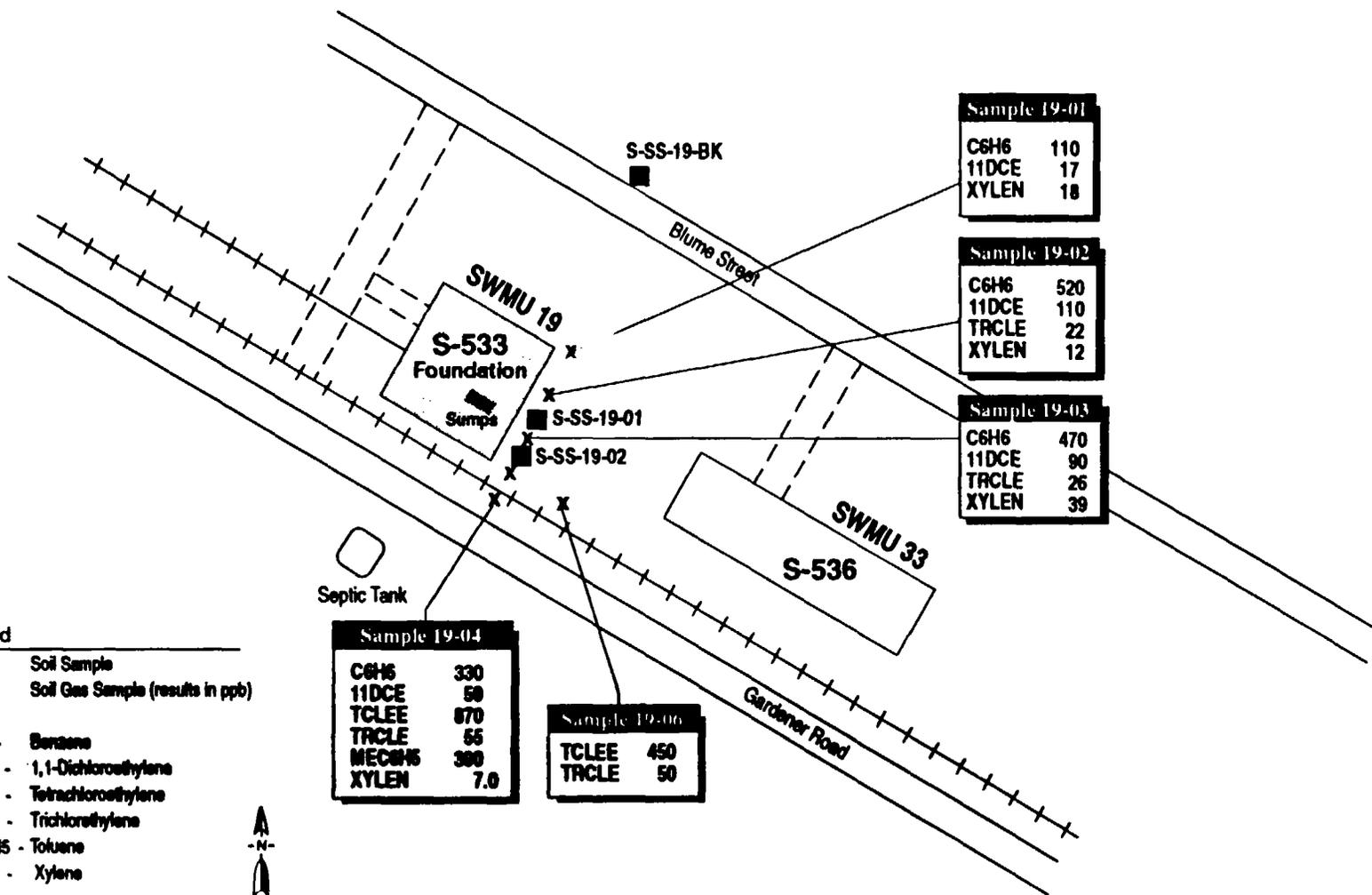
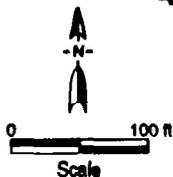
Figure 5.11-2
SWMU 19 - Building S-533 Foundation (Empty Drum Storage)
Volatile Organics

Legend

- Soil Sample
- x Soil Gas Sample (results in ppb)

- C6H6 - Benzene
- 11DCE - 1,1-Dichloroethylene
- TCLEE - Tetrachloroethylene
- TRCLE - Trichloroethylene
- MEC6H5 - Toluene
- XYLEN - Xylene

1990 results are bolded



Sample 19-01

C6H6	110
11DCE	17
XYLEN	18

Sample 19-02

C6H6	520
11DCE	110
TRCLE	22
XYLEN	12

Sample 19-03

C6H6	470
11DCE	90
TRCLE	26
XYLEN	39

Sample 19-04

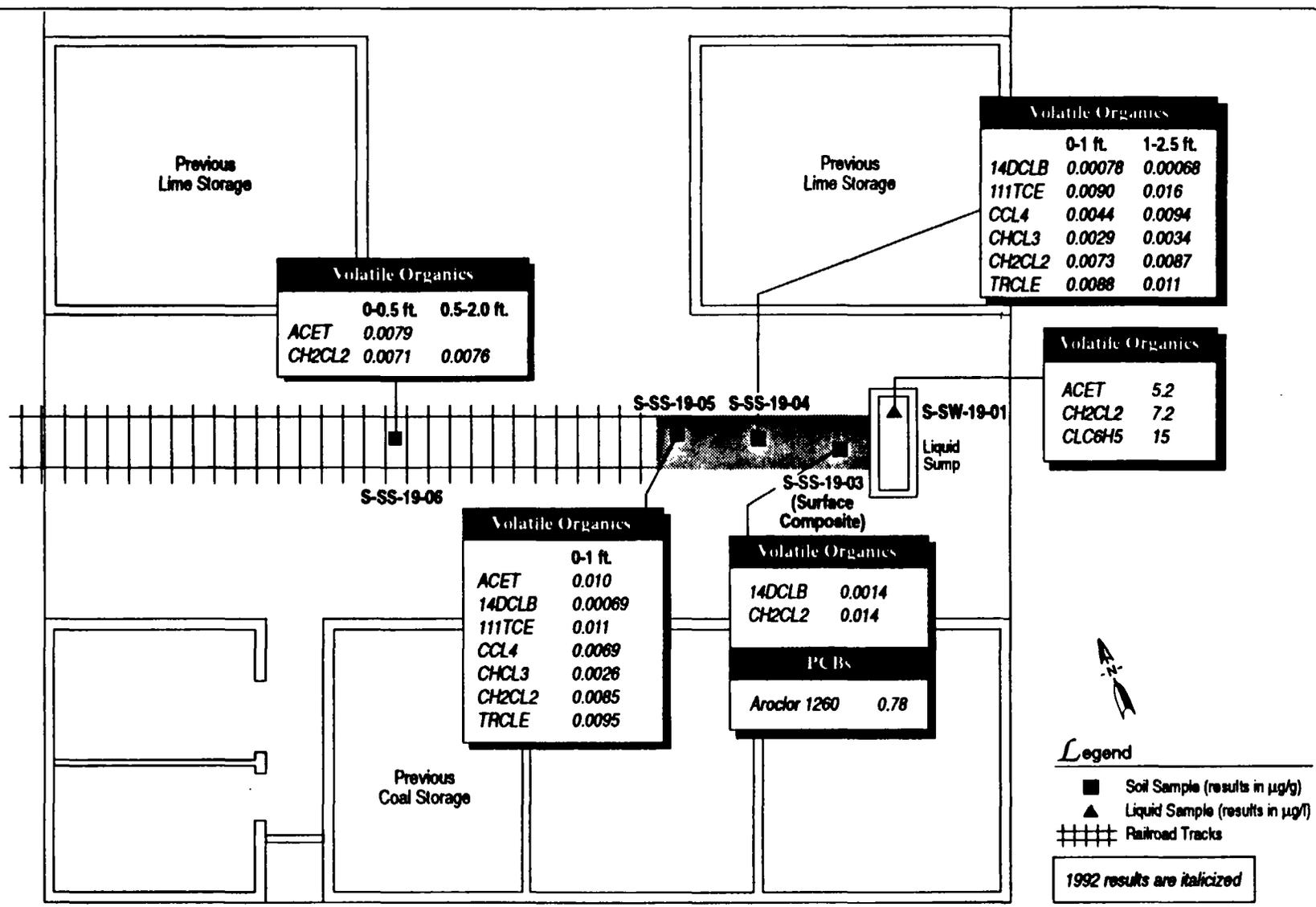
C6H6	330
11DCE	50
TCLEE	670
TRCLE	55
MEC6H5	300
XYLEN	7.0

Sample 19-06

TCLEE	450
TRCLE	50

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Figure 5.11-3
SWMU 19 - Building S-533 Foundation (Empty Drum Storage)
Soil Gas Detections



Source:
 EBASCO Field Measurement
 U.S. Army Corps of Engineers 1943

Figure 5.11-4
SWMU 19 - Building S-533 Foundation (Southern Portion)
Volatilie Organics and PCBs
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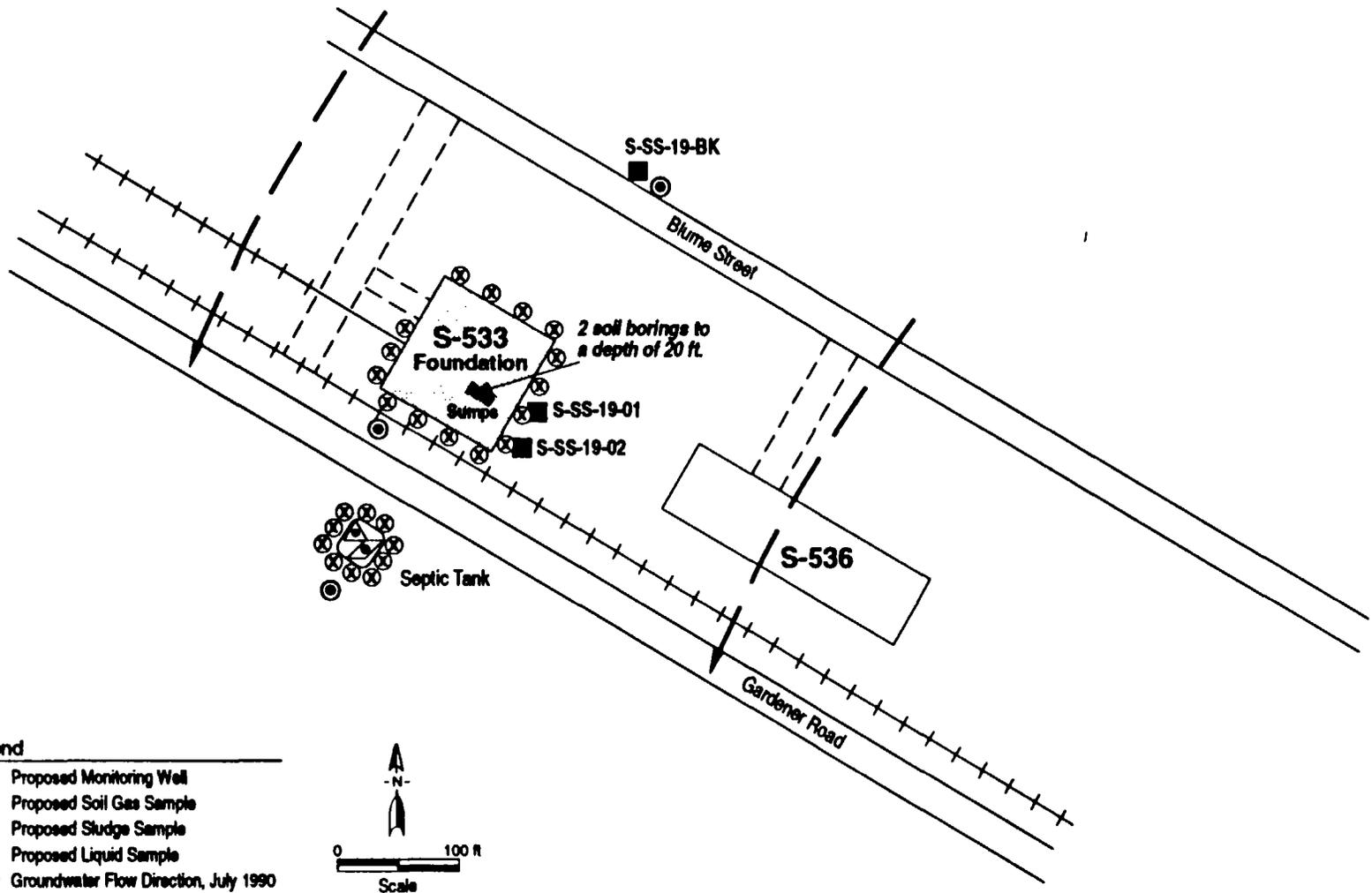
The PCB Aroclor 1260 was also detected in the surface water sample from the liquid sump during the additional sampling program.

Metals concentrations were below the background levels established for TEAD-S soils (Section 4.0). Depth to groundwater is approximately 145 ft, and it is unclear whether chlorinated solvents have infiltrated to groundwater at SWMU 19.

5.11.5 Recommendations

A Phase II sampling program is recommended at SWMU 19 due to low-level detections of organics in soil, soil gas, and surface water samples collected during the Phase I field program and during the additional sampling event. A deeper soil gas survey is recommended around the Building 533 foundation, including the sumps and around the building septic tank, to determine a vertical concentration profile of volatile organics. Soil gas samples should be collected from 5-ft depth intervals up to a depth of 40 ft based on results obtained during the survey. Two soil borings should be drilled below the dry sump and sampled at 5-ft intervals up to a depth of 20 ft. One liquid and one sludge sample should be collected from inside the SWMU 19 septic tank.

One groundwater monitoring well should be installed upgradient and two downgradient of the SWMU. One of the downgradient wells should be located near the septic tank. These soil and water samples should be analyzed for volatile and semivolatile organics, and PCBs. The locations of these proposed samples are shown in Figure 5.11-5. Further historical investigation should also be conducted to determine other potential sources of PCBs at the site such as transformers. Additional soil samples may be recommended based on the results of the PCB survey.



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Figure 5.11-5
SWMU 19 - Building S-533 Foundation (Empty Drum Storage)
Proposed Soil Sampling Locations